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Appendix 6 — Foraging Habitats of Breeding North American Colonial Waterbirds

Species	Commuting Distance from Colony	General Habitat Type	Source
Agami Heron		margins of pools and small watercourses in dense tropical forest+C28	Heron Handbook
Aleutian Tern	up to 11 km from Seward Peninsula; >50 km from other colonies	shallow water: tidal rips, along rivers, inshore marine waters; not on freshwater lakes on Alaskan Peninsula; freshwater ponds and marshes in other areas; over bays and fjords; probably strictly pelagic in winter but no data	BNA
American White Pelican	often >50 km from colony	shallow water, open areas within marshes, along lake or river edges, rapids, less commonly in deep water, shallow coastal marine areas in winter; areas unstable because of natural flooding	BNA
American Wood Stork	S. FL 10-50 km from colony usually 25-50 km, max 97-130 km; N. FL 12.1 km, max 65 km; E. central GA 12.7 km, max >63 km)	available wetlands, artificial and natural; no difference in characteristics of wetlands used suggesting abundance of suitable foraging sites; estuarine and tidal creeks, palustrine sites. More frequently in open canopy than closed canopy.	BNA
Ancient Murrelet	waters on edge of continental shelf; may also occur in large #'s within a few km of land	Breeding - continental shelf or slope waters, sometimes inshore waters Non-breeding - continental shelf and coastal waters where tidal currents concentrate prey	BNA
Anhinga			
Arctic Tern			
Ashy Storm-Petrel	year round on continental slope sometimes within a few km of shore, sometimes > or = 50 km from shore	continental slope waters sometimes within a few km of land and other times > 50 km from land	BNA
Atlantic Puffin	often close to colony; 3-100km; generally 5km or so	not much data on depth; however none known to be caught in gill nets set at 60m but commonly caught in nets set 0-30m	The Atlantic Alcidae
Audubon's Shearwater		surface feeder and plunger	
Band-rumped Storm-Petrel		surface feeder	
Bare-throated Tiger-Heron		mangroves and salt or brackish waters; also tropical marshes and swamps	Heron Handbook
Bermuda Petrel			
Black Guillemot	closer to colony than most other alcids; 1.5-4km; birds have been recorded out to 30 km but they were non-breeders	divers; accounts stress the BLGU's association with sublittoral zones less than 18m deep so to suggest that they do not dive deeper than that typically; up to 37m documented	The Atlantic Alcidae
Black Noddy	abundant within 80 km of roosting or nesting; feed mainly within 10 km from shore, sometimes within a few meters	ocean surface; lagoons of atolls; mainly inshore < 10km sometimes within a few m of shore; also use brackish water of coastal ponds	BNA

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Species	Commuting Distance from Colony	General Habitat Type	Source
Black Skimmer	< or = 8 km from NY colony; 5.2 km from GA colony	tidal waters of bays, estuaries, lagoons, rivers, salt marsh pools, creeks, ditches;	BNA
Black Storm-Petrel		surface feeder	
Black Tern	up to 4 km	breeding grounds - shallow freshwater marshes with emergent vegetation; sometimes cultivated rice fields; open or forested country; non-breeding - largely marine up to 30 km of land; coastal areas, productive freshwater lakes near coasts but sometimes inland	BNA
Black-capped Petrel	evidence suggests regular commutes from breeding sites in Hispaniola to the coast of Cuba and SE US as far as NC	surface feeder	West Indian Seabirds
Black-crowned Night Heron	may fly up to 24 km	shallow, weedy pond margins, creeks, marshes; along coasts Spartina marshes, mudflats, tidal creeks and ditches, pilings and boat riggings; grassy salt marsh most important foraging area; wide variety of wetland habitats in breeding and non-breeding	BNA
Black-footed Albatross		surface of ocean; at sea feeding affected by food distribution and winds	BNA
Black-headed Gull			
Black-legged Kittiwake	NE Canada < or = 50 km from colony during chick rearing; GOA 1-5 km from colony; Bering Sea <1 to >40 km from colony; Winter at least 185 km offshore	Breeders - close to shore over continental shelf; Non-breeders - further offshore over shelf break and oceanic regions	BNA
Black-vented Shearwater		surface feeder and plunger	
Blue-footed Booby			
Blue-gray Noddy			
Boat-billed Heron		wooded or mangrove fringes of freshwater creeks, lakes and inundated marshland	Heron Handbook
Bonaparte's Gull			
Bonin Petrel			
Brandt's Cormorant	rarely >10 km from shore; foraging preference >50 m from shore; winter usually 1 km from coast	over rocky reefs; flat sand or mud, flat areas near rocks, near kelp beds, inshore waters	BNA
Bridled Tern	8-10 km offshore; sometimes 2-3 km; up to 30 km; non-breeding 50-130 km offshore	exhibits strong association with marine flotsam for foraging; open sea usually 8-10 km offshore during breeding; Sometimes within 2-3 km and up to 30 km from colony; non-breeding - at sea	BNA
Brown Booby	thought to feed closer than other boobies; plunge divers;	pelagic	West Indian Seabirds
Brown Noddy	in water within sight of colony out to several tens of km	surface feeder; nearshore to offshore waters; not as pelagic as sooty tern. Breeding - water in sight of colony out to tens of km from colony; non-breeding - no data but probably related to schools of predatory fish	BNA
Brown Pelican			

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Species	Commuting Distance from Colony	General Habitat Type	Source
Buller's Shearwater		surface feeder and plunger	
Bulwer's Petrel	may be hundreds or thousand of square kilometers; one observation 120 km from colony	little info; non-breeding - highly pelagic associated with predatory fish;	BNA
California Gull	Montana avg 17.4 km from colony; max 61 km; up to 60 km from colony	open areas in farmlands, marshes, meadows, garbage dumps, parks, streams, rivers; very variable with common denominator of having food that they can capture and swallow and being fairly open	BNA
Capped Heron		edges of ponds and streams, wet savanna in unvegetated patches and trails	Heron Handbook
Caspian Tern			
Cassin's Auklet	coastal upwellings along continental shelf in spring + summer; about 50% up to 150 km in late fall and winter	CA- relatively clear water; coastal upwellings in spring and summer; up to 150 km off shore during winter and fall; little known on winter foraging area	BNA
Cattle Egret	26-32 km	diverse diet; most foraging in close association with grazing cattle or livestock; also gleans elsewhere, margins of aquatic areas and fields where machinery is being used on fields; arboreal foraging unusual but reported; migration may forage on marine coasts	BNA
Christmas Shearwater		surface feeder and plunger	
Clark's Grebe	adults may go several km to feed if water connections are available from breeding site	tends to forage further offshore than Western Grebe in deeper fresh or salt water	BNA
Cocoi Heron		shallows and shallow rapids; lake shores, swamps, rivers, estuaries - no dense forest, high altitude or arid coastal zones	Heron Handbook
Common Murre	unknown mostly; in theory (derived from flight time) 50-150 km but this could be an overestimate. Seen foraging at 10km	divers possibly up to 60m or so even more; range 60-100	The Atlantic Alcidae
Common Tern			
Common White Tern	breeding birds forage close to colonies, non-breeders go further	little known; surface of ocean; primarily inshore waters, shoals and banks but also offshore waters	BNA
Cook's Petrel			
Cory's Shearwater		surface feeder and plunger	
Craver's Murrelet			
Crested Auklet	little known; open ocean in deep water; long distances from colony; also near shore eg. Aleutian passes	little known; open ocean in deep water, far from shore, long distances from colonies; also feeds in near shore areas	BNA
Dark-rumped Petrel	up to thousands of km from colony	range widely at sea even during breeding; surface feeders	BNA
Double-crested Cormorant	WI avg <3km; MA a few at 30 km but most less; CA roundtrip 70 km from Farallons; generally < 5 km from shore	shallow open water (<8m), close to shore (<5km), may feed over sandy bottoms or among rocks and beds of sea grass or kelp; bottom and midwater feeders; responds rapidly to concentrations of prey.	BNA

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Species	Commuting Distance from Colony	General Habitat Type	Source
Dovekie	2.5-100 km, may shorten for breeding birds during chick rearing; generally < 17 km	divers possibly up to 35-50m	The Atlantic Alcidae
Eared Grebe	forages on breeding grounds	shallow saline ponds, lakes; also near shore in coastal bays; diving depths up to 9m; not much documented	BNA
Elegant Tern			
Fasciated Tiger-Heron		fast-flowing rivers	Heron Handbook
Flesh-footed Shearwater		surface feeder and plunger	
Fork-tailed Storm-Petrel		surface feeder	
Forster's Tern			
Franklin's Gull	within 30 km from colony	Non-breeding - along shores and inland on fields; Breeding- wet pastures, aerially on insects	
Glaucous Gull			
Glaucous-winged Gull	in BC feeds within 100 km of shore with a few going as far as 300 km	omnivorous; coastal and inland; at sea around submarine features that concentrate prey, intertidal and shallow subtidal	BNA
Glossy Ibis			
Gray-backed Tern			
Great Black-backed Gull	up to 100 km from colony; typically within 20km	vaires with food taken; rocky shores, low intertidal and shallow subtidal, mudflats, at sea around submarine features	BNA
Great Blue Heron	30 km from colony; most closer	grasslands, estuarine marshes, intertidal beaches, riverbanks; mostly in slow moving or calm freshwater, and along seacoasts	BNA
Great Cormorant			
Great Egret		shallow water near shore but also on shore or dry habitats; wet habitats of all sorts, fresh and marine	Heron Handbook
Great Frigatebird			
Great Skua			
Greater Flamingo			
Greater Shearwater		surface feeder and plunger	
Green Heron		water's edge in very shallow water; perches on branches, vegetation and rocks to access deeper water; plunges after prey into deeper water; generally under cover of thick vegetation but will feed on open mudflats, tide channels, open marshes, pond edges etc.; swampy thickets, riparian zones, marshes, human made ditches, canals, salt marshes, ponds, lake edges, open flood plains, mangrove swamps and pastures	BNA
Green Ibis			
Gull-billed Tern	no estimates available	opportunistic; does not generally plunge dive like most other terns; primarily over beaches and salt marshes, also over inland plowed fields and shrubby habitats	BNA

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Species	Commuting Distance from Colony	General Habitat Type	Source
Heermann's Gull			
Herring Gull	up to 100 km from colony; typically within 20km	generalist and predator on pelagic and intertidal marine; opportunistic; individual specialization common; varies with food; along rocky shore, low intertidal and shallow subtidal; at sea around submarine features	BNA
Horned Puffin			
Iceland Gull			
Ivory Gull		typically forages pelagically; sea surface, beaches, gravel banks beneath glaciers, glacier fronts, ice leads and melt ponds; may associate with seals and whales	BNA
Jabiru			
Juan Fernandez Petrel			
Kittlitz's Murrelet	1-120 km from shore, around icebergs at sea; most birds < or = 27 km from shore	Prince William Sound nearshore zone (<200m); only 25% frequency of feeding >200m from shore; uses rip tides; forages extensively near outflows of glaciers	BNA
Laughing Gull	non-breeding summer birds 30-60 km inland from coastal breeding sites; breeders may fly 40 km for food	coast at edge of water; inland during high tides and high winds and to find insects in meadows and plowed fields; also feeds on inland lakes, marshes, coastal marshes, impoundements and pools	BNA
Laysan Albatross		completely pelagic; most sightings seaward of continental shelf; area related to food distribution; surface feeder	BNA
Leach's Storm-Petrel	within 200 km but capable of feeding further; uncommon within 50 km of land	1-10 km offshore depending on food availability; surface feeder	BNA
Least Auklet	open ocean far from shore; sometimes near shore	at sea distribution affected by hydrography; may forage near or far from shore depending on presence of suitable features	BNA
Least Storm-Petrel		surface feeder	
Least Tern	3-12 km from colony	variety of shallow water habitats; on marine coasts - bays, lagoons, estuaries, river and creek mouths, tidal marshes and lakes, occasionally offshore; Inland sites - rivers, streams, sloughs, dike fields, marshes, ponds, sand pits and reservoirs	BNA
Lesser Black-backed Gull			

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Species	Commuting Distance from Colony	General Habitat Type	Source
Little Blue Heron	avg in FL 6.7 km from freshwater interior colony; 10.2 km from marine colony (2.9-10.2 km)	various freshwater and marine-estuarine wetland habitats; rarely in upland pasture sites; shallow water and often uses densely vegetated foraging sites; choices highly variable; FL Bay - adjacent mangrove and coastal prairie habitats; non-breeders mostly on tidal flats and mangrove island marshes. Lake Okeechobee, FL - riverine, lake and pond edge, marsh and forested wetlands. Mid-Atlantic - open pools and channel edges of Spartine marshes; FL 6.7 km from freshwater interior colony; 10.2 km from marine island colony; NC - 2.9 from coastal colony	BNA
Little Gull	within site of wetlands, lakes, rivers, marine coasts	highly adaptable but primarily aquatic habitat; water surface in sight of land in wetlands, lakes, rivers, sewage treatment plants, or marine coasts; offshore foraging unknown	BNA
Long-tailed Jaeger	males on outer part of territory or sometimes at sea; females within few hundred meters; non-breeding not usually less than 35 km from coast	tundra barren, wet meadows, along fjord ice, intertidal pools; where lemmings are absent they are mostly on coast and at sea	BNA
Magnificent Frigatebird	seen hundreds of miles from colony when not breeding		West Indian Seabirds
Manx Shearwater	coastal inshore feeder	surface divers; opportunistic foraging over schools of predatory fish	BNA
Marbled Murrelet	within 5 km of shore but known to forage up to 300 km offshore	nearshore and protected waters; rarely found in open pelagic water (>60km; 300 km in AK), usually within 5 km of shore<60 m deep; may get prey from throughout water column; probably within 50 m of surface; also feeds in freshwater lakes in AK, BC and WA (up to 75 km inland) but not in winter usually	BNA
Masked Booby	often 100's of km from land; breeding birds forage closer to colony; Galapagos up to 65 km from colony	often hundreds of km from land; breeders probably closer to land; documented to be at least 65 km from colony; plunge diver	BNA
Mew Gull			
Mottled Petrel			
Neotropic Cormorant	inshore waters	shallow inshore waters in coastal feeding areas; also reported foraging in strong surf; freshwater swift, shallow rapids of mtn streams, marshes, ponds, resevoirs	BNA
Newell's Shearwater		further our than Townsend's Shearwater, only over deep oceanic water >2000 m deep; surface feeder and plunger	BNA
Northern Fulmar	>100 km from colony, possibly up to 300 km; Greenland 1,000 from colony before egg laying, 40-200 km during incubation and rearing	N. Bering Sea and Can. Arctic-ephemeral concentrations of ice-associated macrozooplankton, local upwellings, tide rip currents and eddies caused by landforms and ice; non-breeders rarely >100km offshore	BNA
Northern Gannet			
Parakeet Auklet			

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Species	Commuting Distance from Colony	General Habitat Type	Source
Parasitic Jaeger	widely scattered within 20-50 km of coast in N. Canada during breeding	AK - upland tundra and along rivers; pelagically during migration	BNA
Parkinson's Petrel			
Pelagic Cormorant	rarely observed more than a few kilometer from land; feeds inshore; in Farallons ranges up to 15 km from colonies but usually much closer	inshore areas or shallow intertidal areas; AK - swirling water of riptides and storm tides; CA - seaward fringe of kelp forests, rocky reefs, over sand and mud; deep diver	BNA
Pigeon Guillemot	within 7 km of colony; (0.2-7 km); some possible up to 15 km	feed on bottom dwelling organisms up to 45 m deep; underwater rises, shelfbreaks, and tidal races often favored; Summer - 0.2-7km from colony some up to 15 km, little info for other times of year	BNA
Pink-footed Shearwater		surface feeder and plunger	
Pomarine Jaeger		tundra within nesting territory while breeding; otherwise open ocean	BNA
Razorbill	poorly known; possibly up to 15 km but really unknown	divers: in coastal waters up to 11m; generally < 5 up to 10-15	The Atlantic Alcidae
Red-billed Tropicbird			
Reddish Egret		open, very shallow water; frequently found at salt evaporation pools; open marine flats and shorelines	Heron Handbook
Red-faced Cormorant			
Red-footed Booby	possibly 100-200 km from colony	little known; generally in deep water	BNA
Red-legged Kittiwake			
Red-tailed Tropicbird	possibly 200-500 km from colony	offshore, generally out of site of land; feed singly apparently; plunge divers	BNA
Rhinoceros Auklet	close to shore; one island in WA ~50 km from colony	Breeding - inshore waters and tide rips, dives to mean max of 30m +- 3.7 SD but most at < 10 m	BNA
Ring-billed Gull	10.8 + or - 5.9 km (range 2-31 km)	opportunistic; on land, in water in a great variety of habitats. 10.8km +- 5.9 SD from colony; 87% ground feeding	BNA
Roseate Spoonbill	FL Bay avg. 12 km from colony; adults frequently fly longer distances 30 km, as great as 65 km documented; TX documented 1-1.5 km	open, shallow water (brackish, fresh, salt, hypersaline), mangrove estuaries and freshwater everglands in FL; as dry season advances, move to deeper creeks and moats around tree islands; seen to use roadside ditches and ponds, mosquito control impoundments; max depth about 20 cm but will feed in water above chest; mean distance from nesting 12.4 km +- 5.8	BNA
Roseate Tern	up to 30 km	over shallow sandbars, shoals, inlets or schools of predatory fish; also pelagically over schools of predatory fish; shallow water, closer to land than Commons; up to 30 km from colony	BNA
Ross's Gull			
Royal Tern	seldom seen inland and seldom wander more than a few km from land; plunge divers		

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Species	Commuting Distance from Colony	General Habitat Type	Source
Rufescent Tiger-Heron		tropical swamps and marshes; slower moving rivers, mangroves and groundwater forest;	Heron Handbook
Sabine's Gull			
Sandwich Tern		coastal areas	West Indian Seabirds
Scarlet Ibis			
Short-tailed Albatross		surface feeder	
Short-tailed Shearwater		surface feeder and plunger	
Slaty-backed Gull			
Snail Kite	>1 to >6 km, generally < 2 km; extreme distance 18.5 km	open water patches dispersed in emergent marsh vegetation, shallow lake edges, ponds, ephemeral wetlands, shallow banks of rivers, canals etc	BNA
Snowy Egret	FL abg. 2.8 km from colony; less than 1.4 km typical of birds in FL Everglades	great variety in foraging habitat - salt marsh pools, tidal channels and flats, freshwater marshes/swamps, ocean inlets and lake margins, brackish/marine habitats with relatively shallow water and shoreline	BNA
Sooty Shearwater		surface feeder and plunger	
Sooty Tern			
South Polar Skua			
Striated Heron			
Thayer's Gull			
Thick-billed Murre	up to 170 km in straight line out and back; range greater in incubation than chick rearing; generally 2-25 km	dive up to 210 m; mean depths 7-33m; may go up to 170 km from colony to feed, diving to sample food at random distances; generally dive 75-100m	BNA
Townsend's Shearwater		pursuit plungers up to 10 m; surface upwelling fronts over continental slope 200-2000 meters deep	BNA
Tricolored Heron	mean 5.6 km up to 25 km; postbreeding birds significantly farther away from colony	wide variety of habitats; entirely in wetlands usually in open or semiopen areas with low vegetation; brackish or salt marsh; often in water touching belly (deeper than Snowies and Little Blues), shoreline; foraging radius 5.6 km +/- 6.0 SD up to 25 km	BNA
Tristram's Storm-Petrel		surface feeder	
Tufted Puffin			
Wedge-rumped Storm-Petrel		surface feeder	
Wedge-tailed Shearwater	within 80 km of HI islands	surface feeder and plunger; offshore within 80 km of HI islands; birds from Johnston Atoll recovered 480 km from shore during breeding season	BNA
Western Grebe	adults may go several km to feed if water connections are available from breeding site	open fresh or salt water of varying depths	BNA

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Species	Commuting Distance from Colony	General Habitat Type	Source
Western Gull	up to 80 km from colony; more typically within 20 km	varies according to food; rocky shores in low intertidal and shallow subtidal zones; at sea around submaring features that concentrate prey	BNA
Whiskered Auklet	usually within 16 km of islands; where zooplankton is concentrated	convergent tidal fronts usually within 16 km of islands; mostly found in depths < 100m	BNA
White Ibis	will travel > or = 40 km	Breeding - inland wetlands, shallow seasonal sedge marshes, shallow cypress swamps as well as lawns, pastures and shallow ponds. Coastal feeding habitat is salt marsh in North and lagoonal salines and mangrove swamps in south. Also flooded pastures. In general, broad microhabitat requirements for foraging	BNA
White-faced Ibis	3-6 km from colony (up to 18 km) in NV; in ID 40-48 km	shallowly flooded pond margins, resevoirs, marshes, mudflats; mostly documented feeding on flooded agricultural fields, especially alfalfa.	BNA
White-necked Petrel			
White-tailed Tropicbird	documented foraging at 89 km from colony; non-breeders documented at 1,000 km from colonies	plunge divers up to 15-20 m; over deep waters far from land; believed to feed closer to nesting islands than Red-tailed or Red-billed Tropicbirds	BNA
Wilson's Storm-Petrel		surface feeder	
Xantus's Murrelet	2-14 km from colony; non-breeding 20-100 km offshore	Non-breeding - warm, clear, epipelagic waters generally far offshore. Breeding - remain relatively close to land (2-14 km) with few within 1 km and few > 15km	BNA
Yellow-crowned Night Heron	avg in NC 1.4 km; in VA <0.5 km	along water margins including tidal marshes, tide pools, mudlats, beaches, rocky shorelines, ponds, rivers and creeks; also shallow waters like tidal creeks, surf, swamps and mangroves; occasionally in upland sites like plowed fields and lawns; will use human made aquatic habitat like shrimp farms and sewage treatment plants; prefer marshes dominated with cordgrass near nest sites	BNA
Yellow-footed Gull	most within 10 km of colony	varies according to food; deep water and marine intertidal; around submarine mounts, sandbars and upwellings that concentrate prey	BNA

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